Patent Claims

1. Tool for the production of cast components, in
    particular gas turbine components, from reactive
    nonferrous molten metals, in particular from titanium
    alloys, wherein the tool is formed as a casting mold,
    characterized in that at least one area of the
    casting mold (10) which comes into contact with the
    reactive nonferrous molten metal is made of yttrium
    oxide, magnesium oxide and calcium oxide.

2. Tool as defined in claim 1, **characterized in that** at
    least one mold wall area of the casting mold (10)
    which comes into contact with the reactive nonferrous
    molten metal is made of yttrium oxide, magnesium
    oxide and calcium oxide.

3. Tool as defined in claim 1 or 2, **characterized in
    that** the casting mold has a construction of at least
    two layers wherein a first layer (14) forms a mold
    wall area which comes into contact with the reactive
    nonferrous molten metal and a second layer (15) forms
    a backfilling stabilization area for the mold wall
    area.

4. Tool as defined in claim 3, **characterized in that**
    both the first layer (14) and the second layer (15)
    consist of yttrium oxide, magnesium oxide and calcium
    oxide wherein the second layer (15) which backfills
    the first layer (14) has less yttrium oxide and is
    more coarsely grained than the first layer.

5. Tool as defined in claim 3 or 4, **characterized
    thereby that** the second layer (15) has thicker walls

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than the first layer (14).

6.   Method for the production of a casting mold for cast
      components, in particular gas turbine components,
      from reactive nonferrous molten metals, in particular
      from titanium alloys, **characterized by** the following
      steps:

      a) Provision of a component wax model which has the
      geometrical dimensions of the precision-casting
      components to be produced with the casting mold,

      b) Coating of the component wax model with a slurry
      material consisting of water, yttrium oxide,
      magnesium oxide and calcium oxide,

      c) Drying and hardening the coating for the casting
      mold,

      d) Removal of the component wax model from the casting
      mold.

7.   Method as defined in claim 6, **characterized in that,**
      together with step b), the slurry material is spread
      in multiple layers on the component wax model.

8.   Method as defined in claim 7, **characterized in that**
      the slurry material is spread in multiple layers on
      the component wax model in such a way that a casting
      mold with at least a two-layer construction is
      created wherein a first layer of the casting mold
      forms a mold wall area which comes into contact with
      the reactive nonferrous molten metal, and a second
      layer of the casting mold forms a stabilization area

which backfills the mold wall area.

9. Method as defined in claim 8, **characterized in that** the first layer of the casting mold is formed by spreading one or more layers of a slurry material consisting of water, yttrium oxide, magnesium oxide and calcium oxide on the component wax model, and that the second layer is formed by spreading one or more layers of a slurry material consisting of water, yttrium oxide, magnesium oxide and calcium oxide on the first layer.

10. Method as defined in claim 9, **characterized in that** the slurry material for formation of the second layer which backfills the first layer has less yttrium oxide and is more coarsely grained than the slurry material for formation of the first layer.

11. Method for the production of a cast component, in particular a gas turbine component, from reactive nonferrous molten metals, in particular from titanium alloys, **characterized by** the following steps:

a) Provision of a casting mold as defined in one or more of claims 6 to 10,

b) Filling the nonferrous molten metal into the casting mold,

c) Solidification of the nonferrous molten metal in the casting mold,

d) Removal of the cast component from the casting mold.

12. Method as defined in claim 11, **characterized in that** a titanium aluminum molten alloy is filled into the casting mold to produce a gas turbine component.